



Arizona Department of Weights and Measures

4425 West Olive Avenue, Suite 134 Glendale, AZ 85302
602-255-5211 FAX 602-255-1950 800-277-6675
www.azdwm.gov

Here's 10 ways to Fight High Gas Prices

- 1) Keep your car properly maintained. Following manufacturer recommendations for engine, cooling, ignition system, brakes, drive train and emission control systems will reduce fuel consumption.
- 2) Check and replace air filters regularly. This can improve mileage by as much as 10 percent.
- 3) Keep tires properly inflated. This will improve mileage by about 3.3 percent. Properly inflated tires also are safer. They're less likely to overheat and cause blowouts or tread separation.
- 4) Use the recommended grade of motor oil to maximize fuel economy. Look for the "Energy Conserving" label that indicates that the motor oil contains "friction reducing" additives.
- 5) Observe the Speed Limit. Higher speeds consume more fuel. If you paid \$2.55 to fill your gas tank, each 5 mph you drive over 60 mph is like paying an additional 17 cents a gallon for gas. At \$3 a gallon, you're paying an extra 20 cents a gallon.
- 6) Avoid Excessive Acceleration. Speeding, rapid acceleration and rapid braking can reduce gas mileage by as much as 33 percent at highway speeds.
- 7) Use cruise control. Maintaining a constant speed in most cases will save gas in conventional vehicles.
- 8) Don't "top off" your gas tank. This releases gas fumes, which contributes to air pollution. At service stations equipped with Vapor Recovery systems, the excess fuel is actually sucked back into the underground storage tank.
- 9) Don't use High Octane Premium gas unless your car's manufacturer specifically recommends it. In most cases, a higher octane will not improve performance or reduce fuel consumption. It will just cost more at the pump.
- 10) Reduce your driving by planning trips. Use mass transit, carpools or bikes if possible. Walking is good for your health, and it's good for your fuel budget.

Facts To Consider About Octane

What is an Octane Rating?

Your engine burns a mixture of air and fuel that is injected into each engine cylinder. Octane ratings measure the ability of an automobile engine to prevent engine knock, which occurs when some of the air-fuel mixture spontaneously ignites too early, causing a sudden jump in cylinder pressure. High Octane gas burns slower. This reduces engine knock.

What is Engine Knock?

It is not unusual for an engine to make a “pinging” noise at full throttle, due to high cylinder pressures. Engine knock, however, should not be ignored because it could result in serious engine damage.

NOTE: If your engine knocks or pings, it does not necessarily mean something is wrong with the fuel. It could be signs of problems with the engine’s electronic control systems, ignition timing or exhaust gas recirculation.

How is Octane Rating Determined?

Two different testing ratings are used to establish Octane Ratings

MOTOR METHOD: Gasoline is run through an engine under load

RESEARCH METHOD: Gasoline is run through a free-running engine. This method typically gives higher octane ratings than the motor method.

NOTE: State and federal law require service stations to display the Octane Rating on their pumps, on a yellow label with black lettering. The rating displayed on those labels is an average of results from the Motor and Research methods.

Does High Octane increase engine power?

Not if your car is designed to run on Regular.

Does High Octane gas improve gas mileage?

No. If your car is designed to run on 87-Octane gas, which is the minimum rating in Arizona for regular, switching to high octane will not improve mileage.

I think someone sold me bad gasoline. What should I do?

Please contact the Arizona Department of Weights and Measures as soon as possible at (602) 255-5211 or 1-800-277-6675.

Consumers can also file an electronic complaint in English or Spanish by visiting the Department website, www.azdwm.gov.

Prompt reports allow Weights and Measures to inspect a fuel supply before a poor-quality product is fully consumed at the retail level. The Department conducts random spot-checks of fuel at the pipeline, terminal and retail distribution levels.

We cannot check fuel quality in individual vehicles.

NOTE: If switching to High Octane does improve mileage, it may mean that your engine, or its control system, need repair. Consult your mechanic.

How is High Octane Different From Low Octane?

High Octane gas burns slower. This reduces engine knock when cylinder pressure is high.

Can I switch from Premium to Regular?

Check your vehicle's owner's manual. If your manual does not specifically recommend High Octane you probably can switch. If the vehicle knocks, pings or runs poorly try the Mid-Grade before returning to High-Octane fuel.

Fuel Pricing Factors

Why Do Some Gas Stations Charge Less Per Gallon Than Others?

Arizona's retail gas market is affected by a number of factors. Stations in desirable locations pay higher rent. This includes upscale neighborhoods and areas of high commercial traffic, such as freeway intersections. Additionally, wholesalers vary their prices to retailers by zones. Finally, market conditions affect fuel prices, sometimes on a day-to-day basis.

Do Gasoline Additives Affect Gas Prices?

The U.S. Environmental Protection Agency (EPA) mandates that every gasoline retailer include an additive package containing detergents and deposit control mixtures. Some companies add additional ingredients that may help engines run better and stay cleaner. These differences in additives can affect the price at the pump, as well as your gas mileage.

How Much Do Taxes Add to Gas Prices?

Arizona has one of the lowest fuel-tax levels in the nation. The federal tax adds 18.4 cents. There is an Arizona fuel tax of 18 cents, and there is a one-cent tax to cover the cost of cleaning up underground storage tanks. That comes to 37.4 cents a gallon, well below the national average of 42 cents per gallon.

What Can the Public Do To Bring Down Gas Prices?

As with all consumer products, prices are sensitive to demand. If Arizona drivers do everything they can to improve vehicle fuel efficiency, plan their trips to reduce their driving, use mass transit or carpooling whenever possible and take other steps to reduce fuel consumption, their actions can help to hold down prices.

Do Other Government Mandates Add To Fuel Costs?

The Vapor Recovery Program, administered by Weights and Measures, helps to reduce ozone levels by capturing fuel vapors that are released when you fill your gas tank. Most of these vapors are re-circulated back into the service station's underground storage tank. The vapor recovery systems add to the cost of operating service stations in Area A (surrounding the Phoenix Metropolitan Area). As with all overhead, this cost is passed on to consumers.

Where does Arizona get its gas?

The state gets its fuel from two pipelines, one originating in Southern California, which moves through Yuma and terminates in Phoenix. A second pipeline begins in El Paso, moves through Tucson and also ends in Phoenix. It takes a gallon of gas seven days to reach the state through the Southern California pipeline, and six days to get here through the pipeline from Texas.

How much gas do we use in Arizona?

In July, 2005, about 145 million gallons of gasoline were consumed in the area surrounding Phoenix, known as Area A. This represents about 63 percent of the state's total fuel consumption.

Area B, which is the area surrounding Tucson, consumed about 33 million gallons, about 14 percent of the statewide total.

The rest of the state used 86 million gallons, or about 23 percent.

What kind of gasoline do we use in Arizona?

Residents of Area A use Clean Burning Fuel (CBG) year-round. CBG is one of the most environmentally sound gasoline blends consumed anywhere in the world. It has been oxygenated and reformulated to reduce the amount of certain pollutants, such as sulfur, and has been modified to enhance certain performance characteristics.

Residents of Area B use a blend of conventional gasoline and ethanol from October through March. This blended fuel promotes more complete combustion of gasoline, which reduces carbon monoxide and volatile organic chemicals. In addition, ethanol is derived from corn, a renewable resource, and it reduces our reliance on fossil fuels.

Residents of the rest of Arizona use conventional gasoline.

Why Does The Phoenix Area Need CBG?

The Arizona Cleaner Burning Gasoline (CBG) program was adopted by the Legislature when the U.S. Environmental Protection Agency (EPA) found that air quality in the Phoenix Metropolitan Area failed to meet National Ambient Air Quality Standards for both Carbon Monoxide (CO) and Ozone (O₃) during winter and summer months. As a result of this finding, the EPA determined that Phoenix was in "serious non-attainment."

Because of that finding, Arizona is required to provide a State Implementation Plan (SIP) to the EPA. This SIP outlines the exact steps that will bring the Phoenix Metropolitan area into compliance with federal ambient air quality standards. Arizona's CBG program is an important part of the plan to reduce levels of the following:

Ozone, formed when sunlight and heat act on volatile organic compounds, has been found to be harmful to human health and the environment.

Carbon Monoxide impairs the ability of the blood to carry oxygen to the human body. The cardiovascular system is primarily affected, causing angina pain in persons suffering from cardiac disease, and leg pain in persons suffering from cardiac arterial disease.

Has CBG improved air quality in Phoenix?

The state's air quality has improved significantly since 1997, when CBG was first introduced. The improvement is especially significant since May 1999, when CBG standards became more stringent. While other factors play a role, all available scientific evidence seems to show that CBG is the third most effective pollution control program, after federal tailpipe standards for vehicles and off-road engines, and the vehicle inspection program.